

Champlain College Greenhouse Gas Inventory FY2021

FY2021: The COVID-19 Pandemic continues...

The 2020-2021 Academic year was nothing typical. The Burlington campus had:

- Students attending hybrid classes (some remote, some in-person)
- Approximately half the number of residential students
- A few residence halls operating as isolation or quarantine halls; two completely unused (North, Sanders)
- Most staff working from home
- Some faculty working on campus; others working and teaching remotely
- Increased air exchanges and filtration in buildings, 24/7
- Increased use of disposable / take out dining ware for students
- No study abroad, faculty-led field courses, or service trips
- Minimal travel for admissions and other sponsored-travel

Why do we track our greenhouse gas emissions?

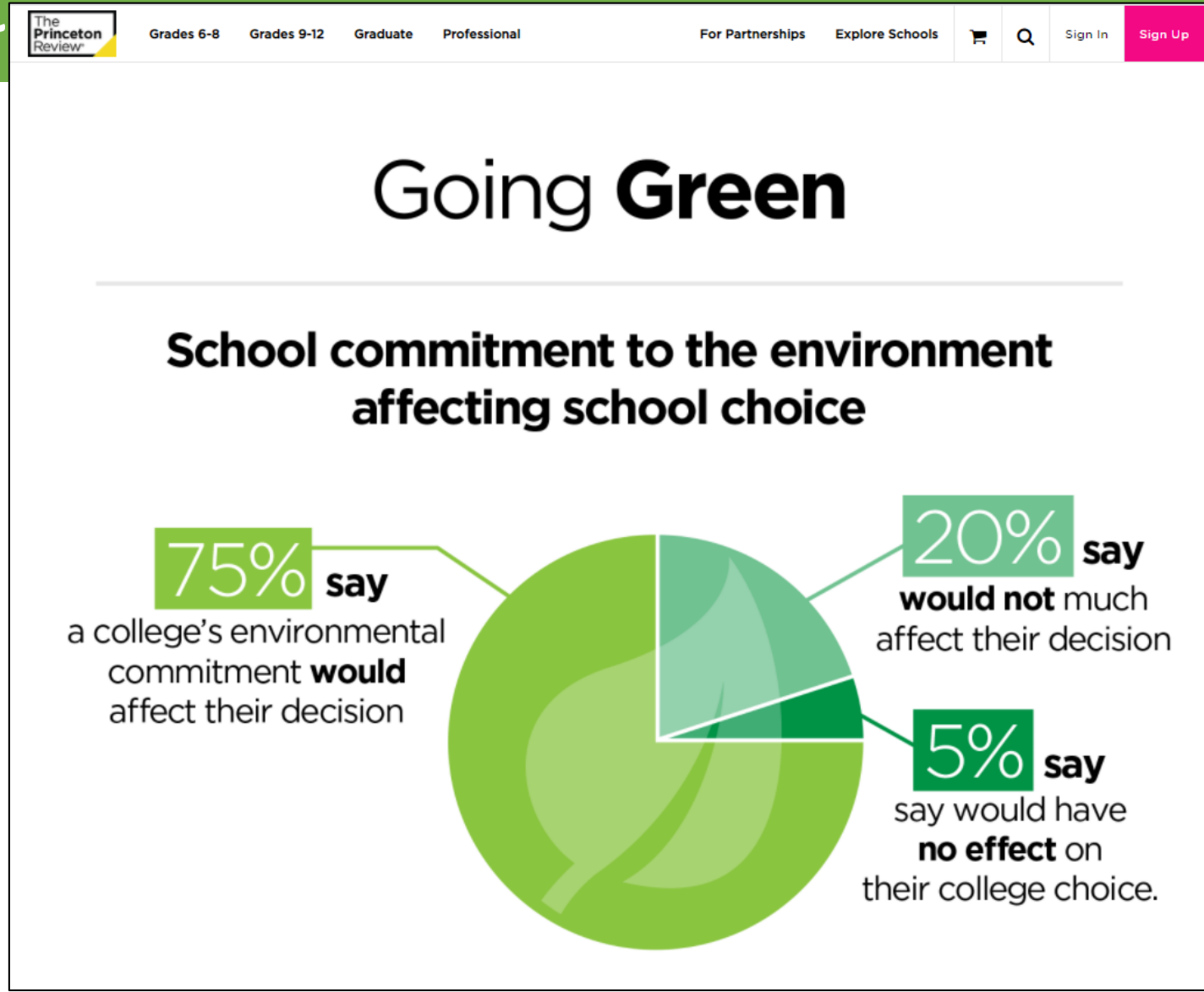
- Since 2017, Champlain* is a member of the [Burlington 2030 District](#).
 - Goal: working to reduce building energy consumption, water use and transportation emissions 50% by 2030
 - *technically, only the CCM building is represented in this membership
- Support City of Burlington's [Climate Action Plan](#) goals
 - Goals: The first target requires leveling off the growth of emissions by 2016 and bring them back to 2010 levels. The second target involves an actual reduction of the 2010 emission levels by 2025. (p.10)
- Support State of Vermont's 2021 [Climate Action Plan](#)
 - Goal: to reduce emissions by 50% by 2030.
- [Climate Change is a Racial Equity Issue](#)



Why? Students want it

Prospective Students Show Increased Interest in Campus Environmental Commitment

In Princeton Review's latest survey (2021) of high school students, called Hopes & Worries, the percentage of students for whom a college's environmental commitment would impact their decision of where to attend jumped from **66 percent in past years to 75 percent.**



Included Emission Sources at Champlain College

Scope 1 – Direct

- Natural Gas Consumption
- Vehicle Fleet & Shuttle
- Fertilizer
- Refrigerants

36%

Scope 2 – Upstream

- Electricity Purchased from the Regional Grid

42%

Scope 3 – Indirect

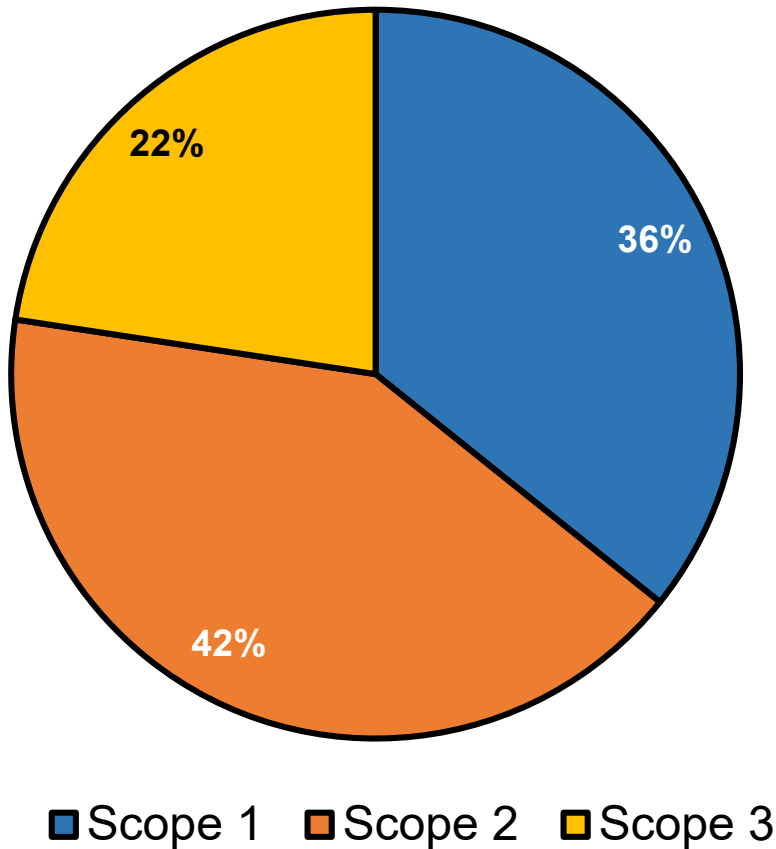
- Employee & Student Commuting
- Employee Air Travel & Student Study Abroad
- Personal Mileage Reimbursement
- Landfill Waste
- Wastewater
- Purchased Paper
- T&D Losses

23%

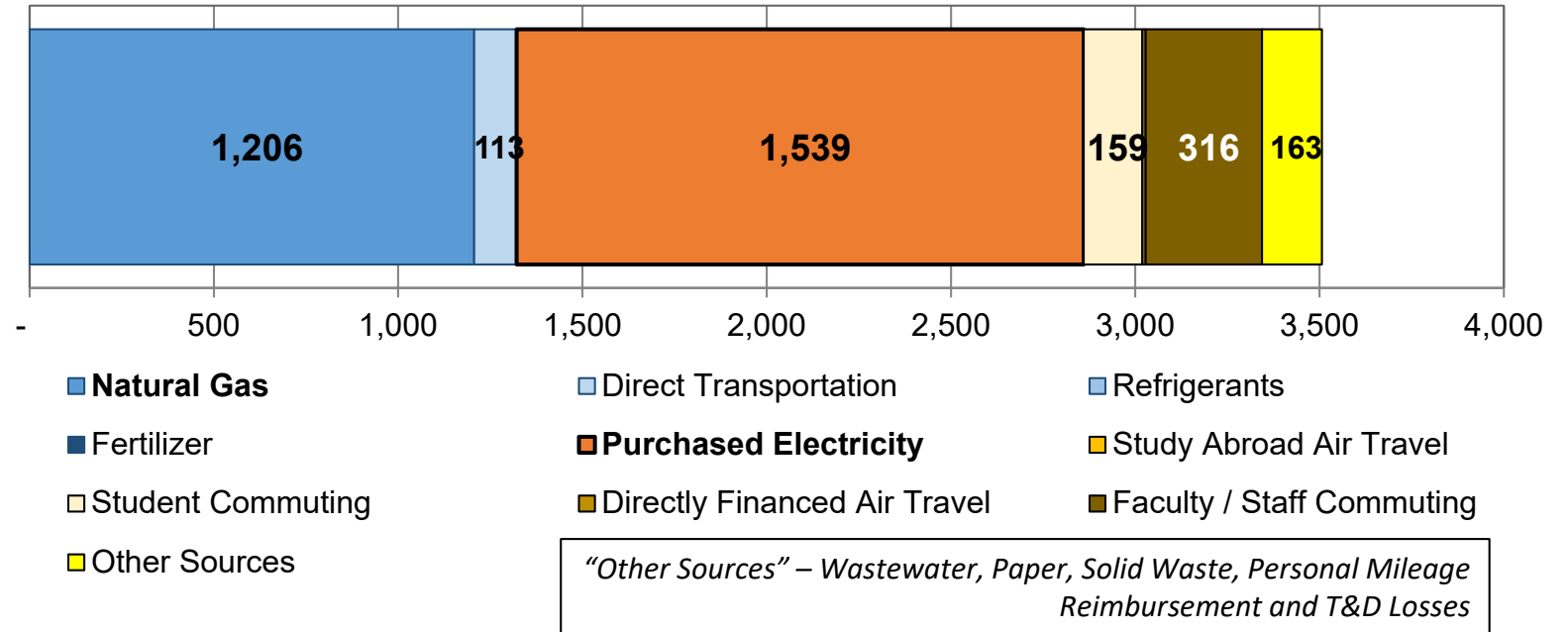
Increasingly Difficult to Control and Mitigate These Sources of Emissions

Summary of Champlain's GHG Emission Sources

GHG Emissions by Scope

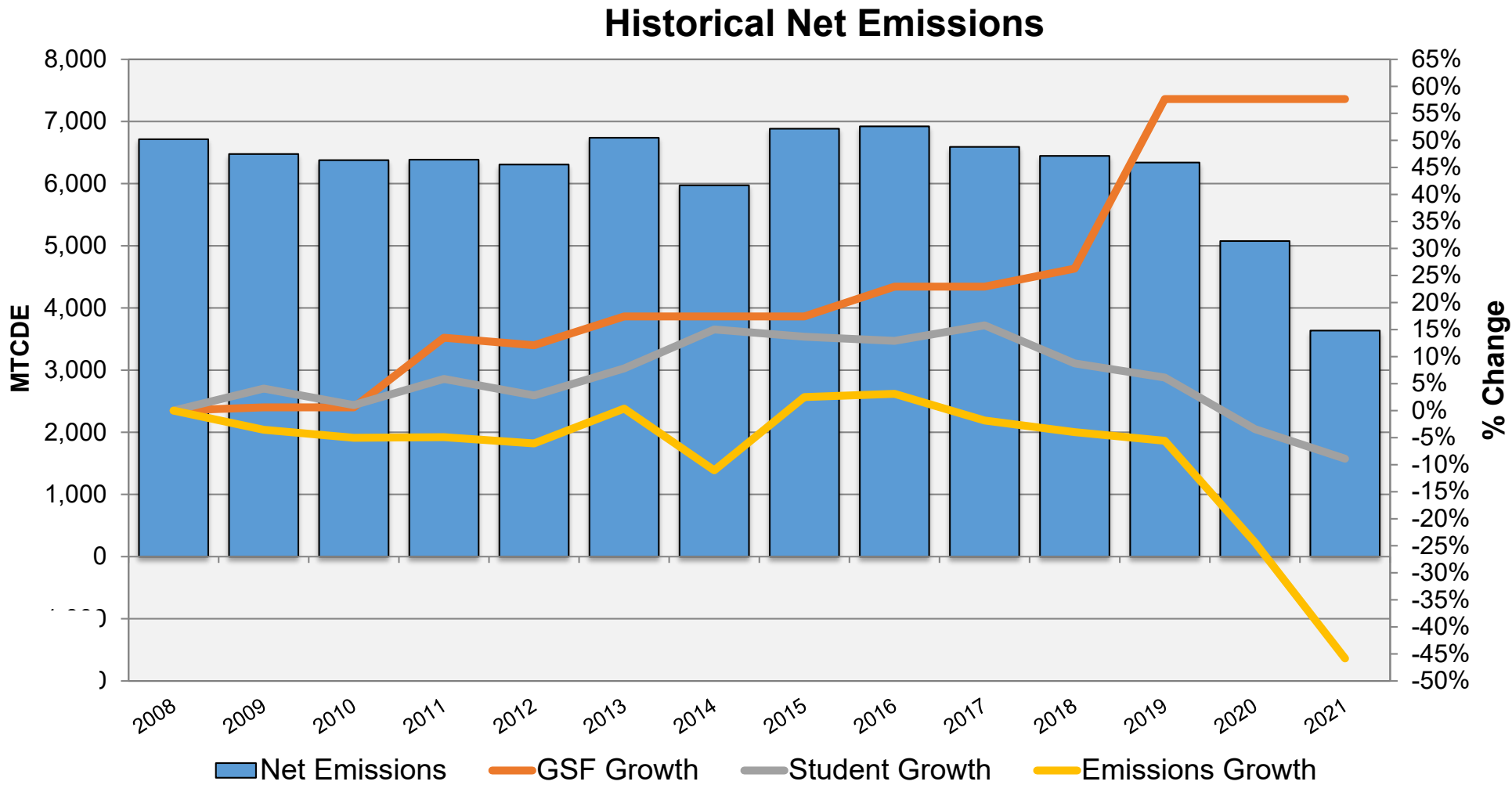


Campus GHG Emissions by Source - MTCDE



This year marks a major change from our typical trend, which had transportation accounting for over half of our emissions. For 2021, electricity was our major source, followed by natural gas.

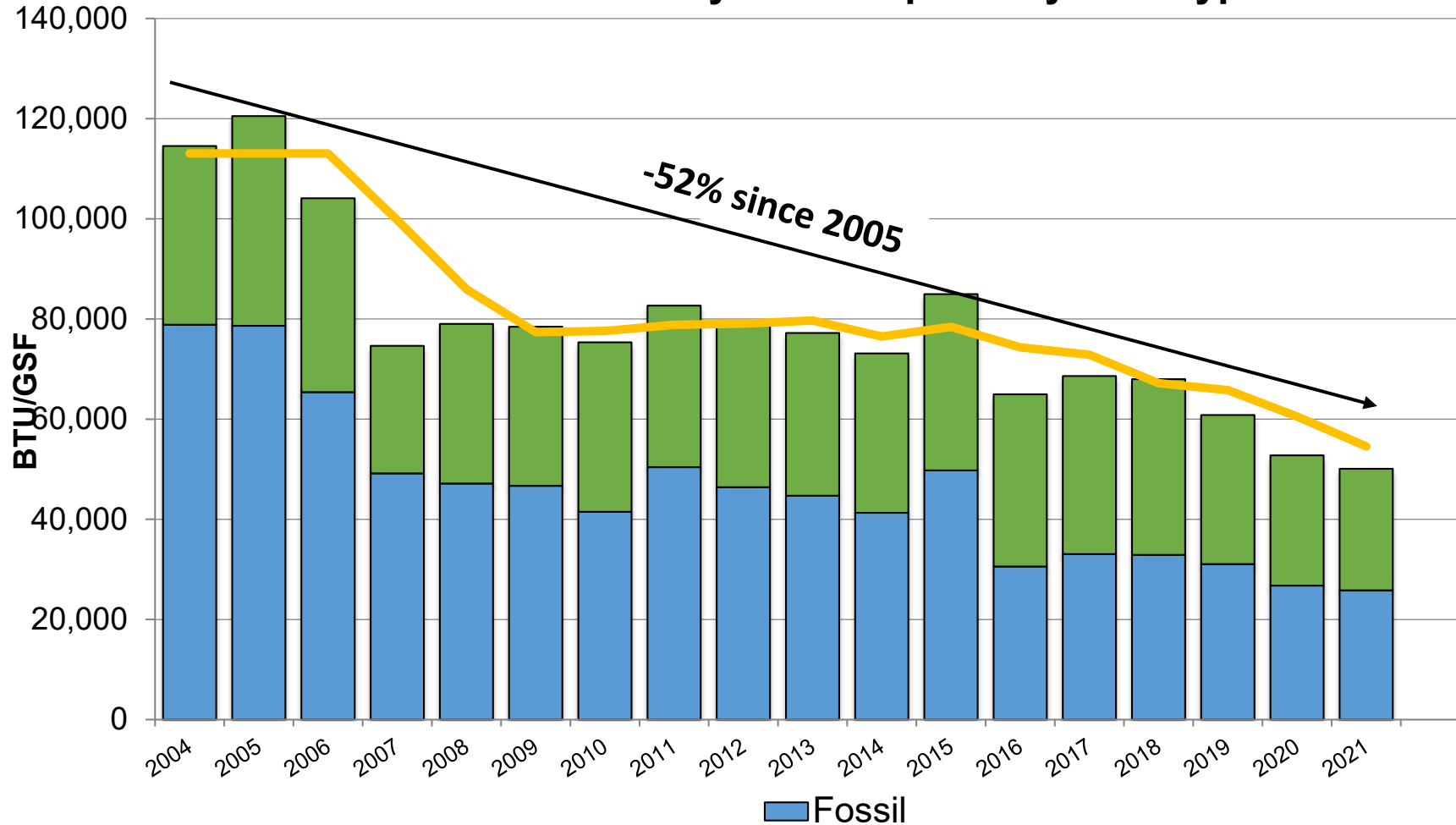
Emissions Significantly Lower due to COVID conditions



Emissions Decreased by 46%
 Due to fewer people on campus and little to no domestic or international travel

Energy Use on a Steady Decline

Total Utility Consumption By Fuel Type



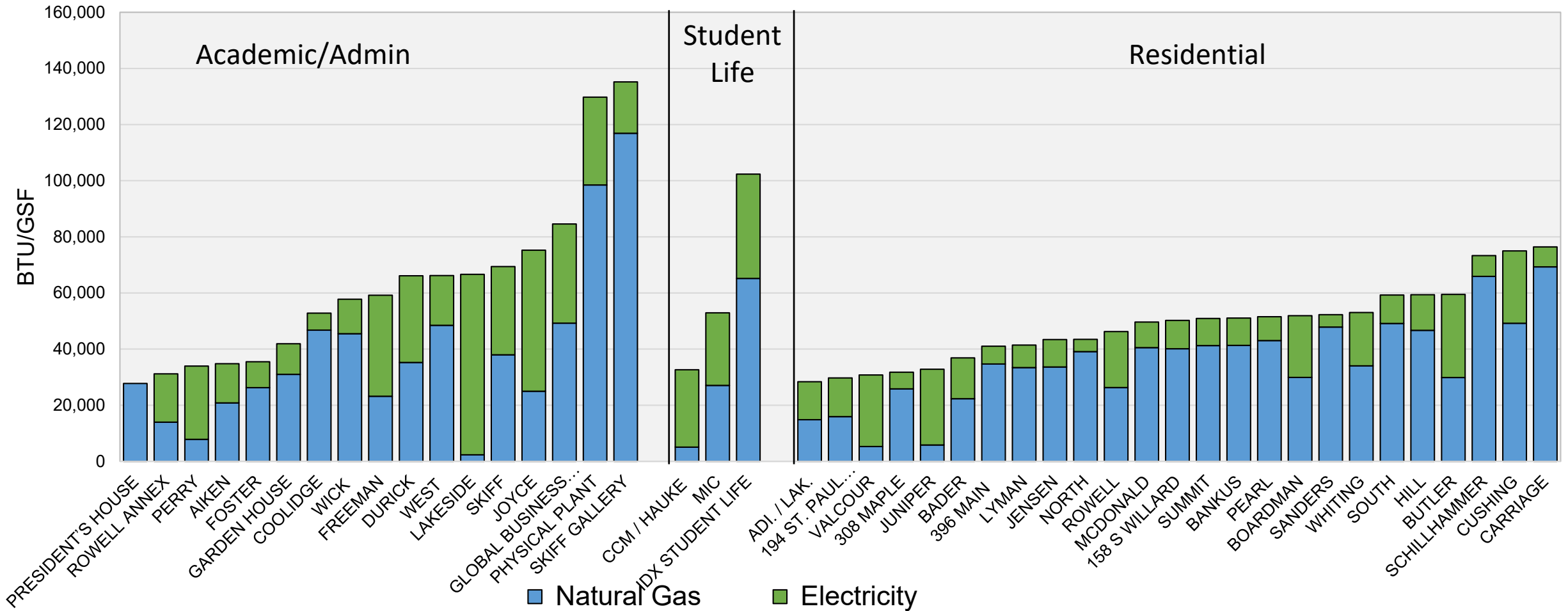
Compared to prior year:

Gas: 4% Gross Decrease
Residential: 2% net decrease
Acad/Admin: 5% net decrease

Electricity: 7% Gross Decrease
Residential: 8% net decrease
Acad/Admin: 5% net decrease

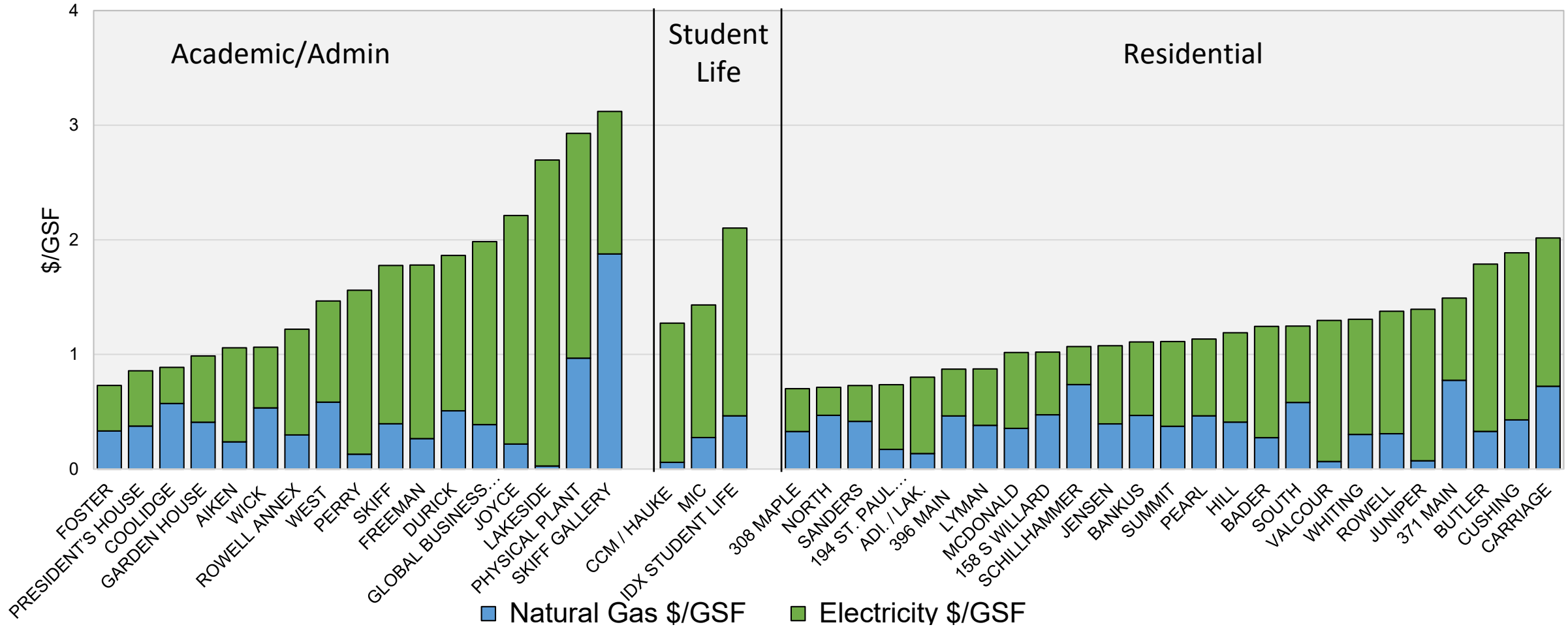
FY21 Energy Consumption by Building

Total Energy Consumption

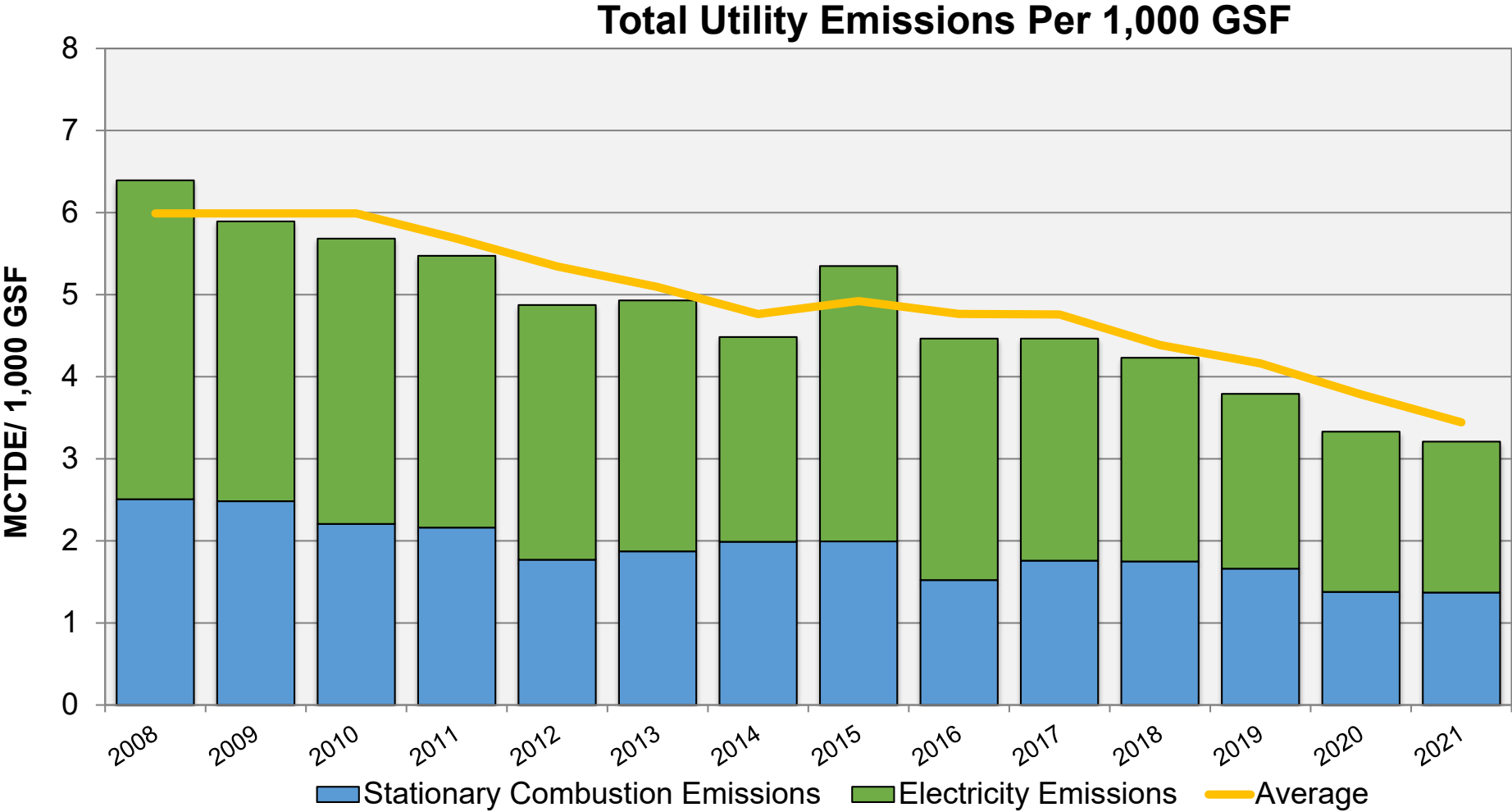


FY21 Energy Costs by Building

Total Energy Costs per Gross Square Foot



Building-based Emissions on Steady Decline



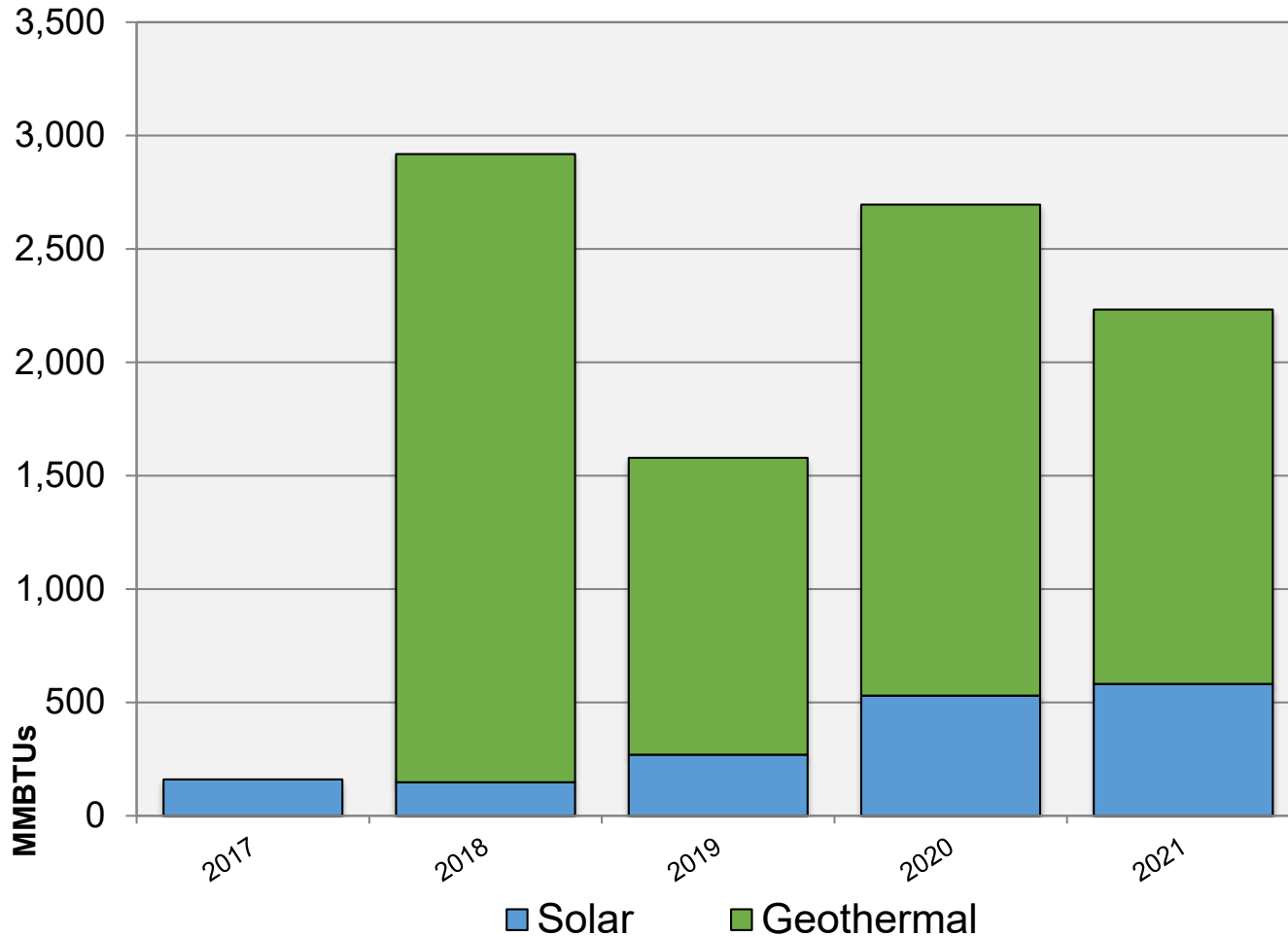
Champlain’s gross utility emissions are 50% below 2008 levels, despite a 58% increase in building space since then.

FY20 and FY21 are likely lower due to pandemic / fewer people on campus

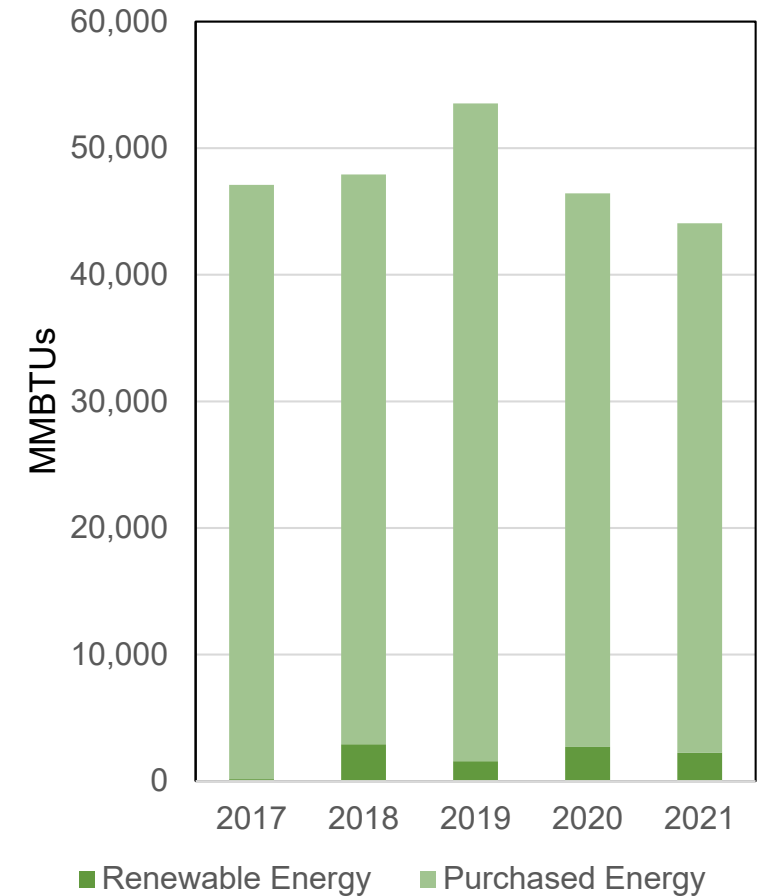
**T&D Losses included in Electricity Emissions bar*

Renewable Energy is a growing part of our solution

Renewable Energy Generated Onsite at Champlain



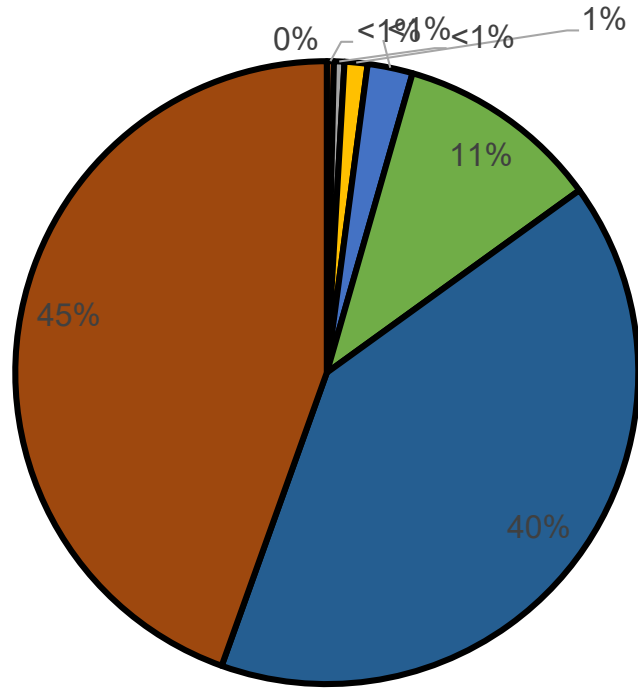
Total Energy Consumption at Champlain



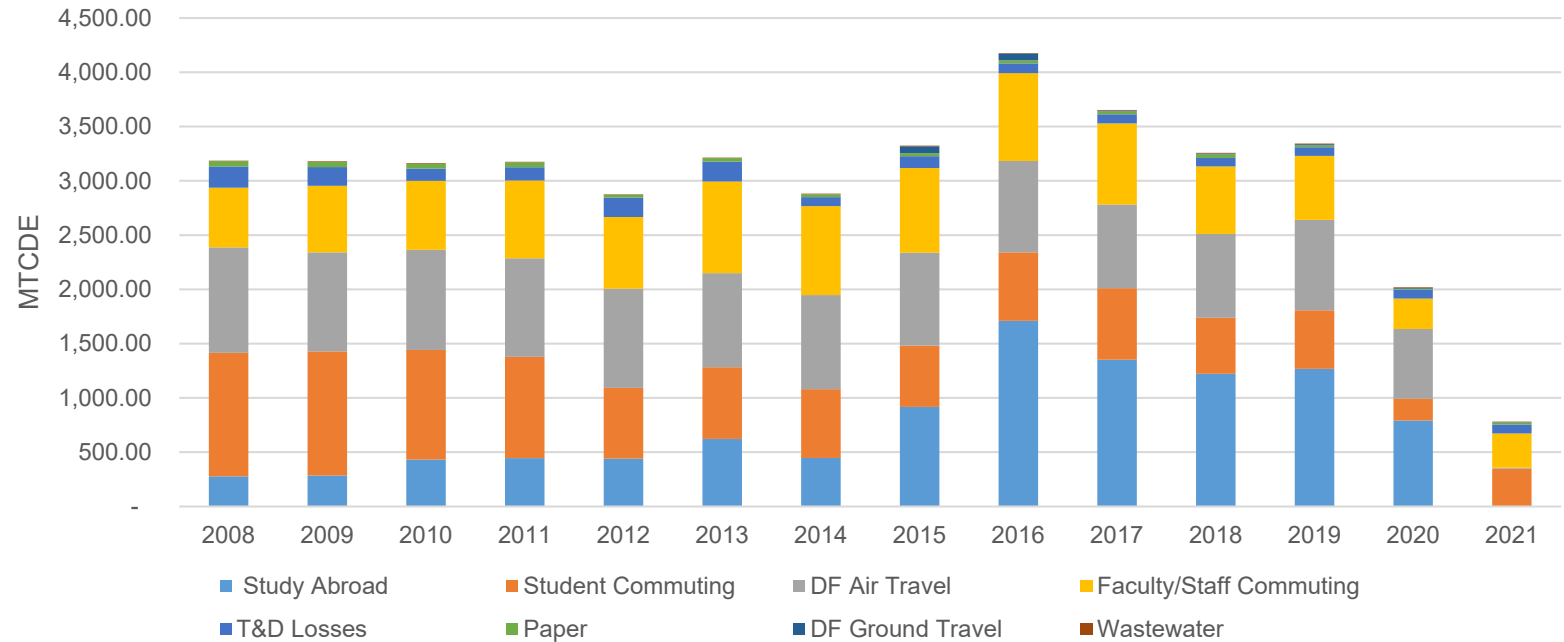
Onsite renewable energy was 4.8% of our total energy consumption in FY2021.

FY21 Scope 3: Commuting is Top Source

FY21 Scope 3 GHGs by Source



Scope 3 Emissions by Source



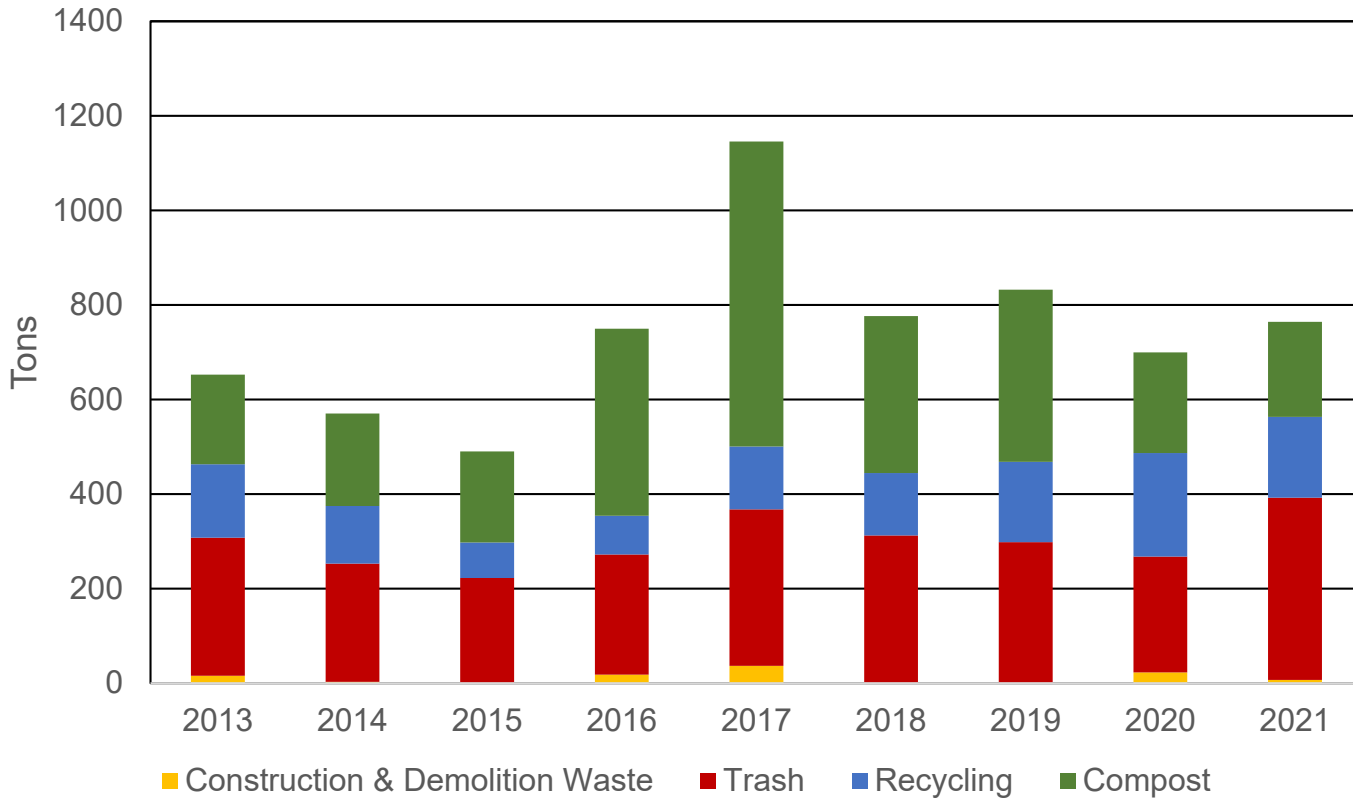
- Study Abroad
- Wastewater
- Paper
- Faculty/Staff Commuting
- DF Ground Travel
- DF Air Travel
- T&D Losses
- Student Commuting

- FY 21 Scope 3 Emissions – no international courses and travel due to pandemic
- Used Fall 2021 CATMA survey data, which is FY22 so commuting figures are likely off for FY21

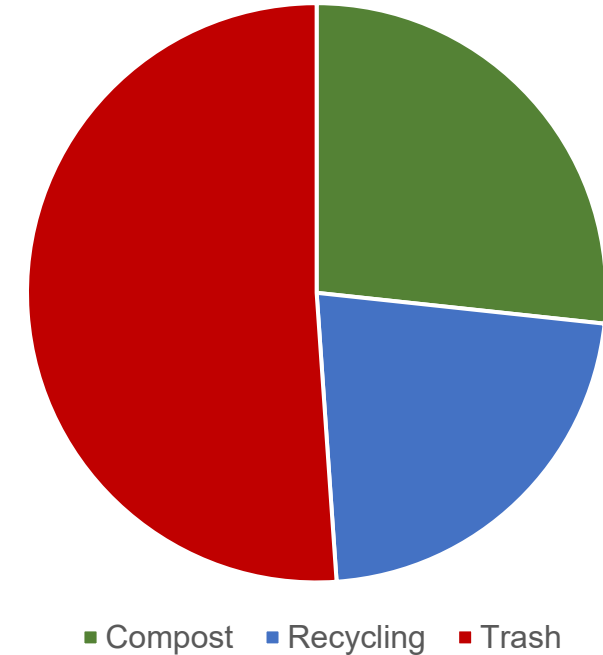
Scope 3: A closer look at Waste

smaller emissions impacts, but highly tangible

Total Waste Generated



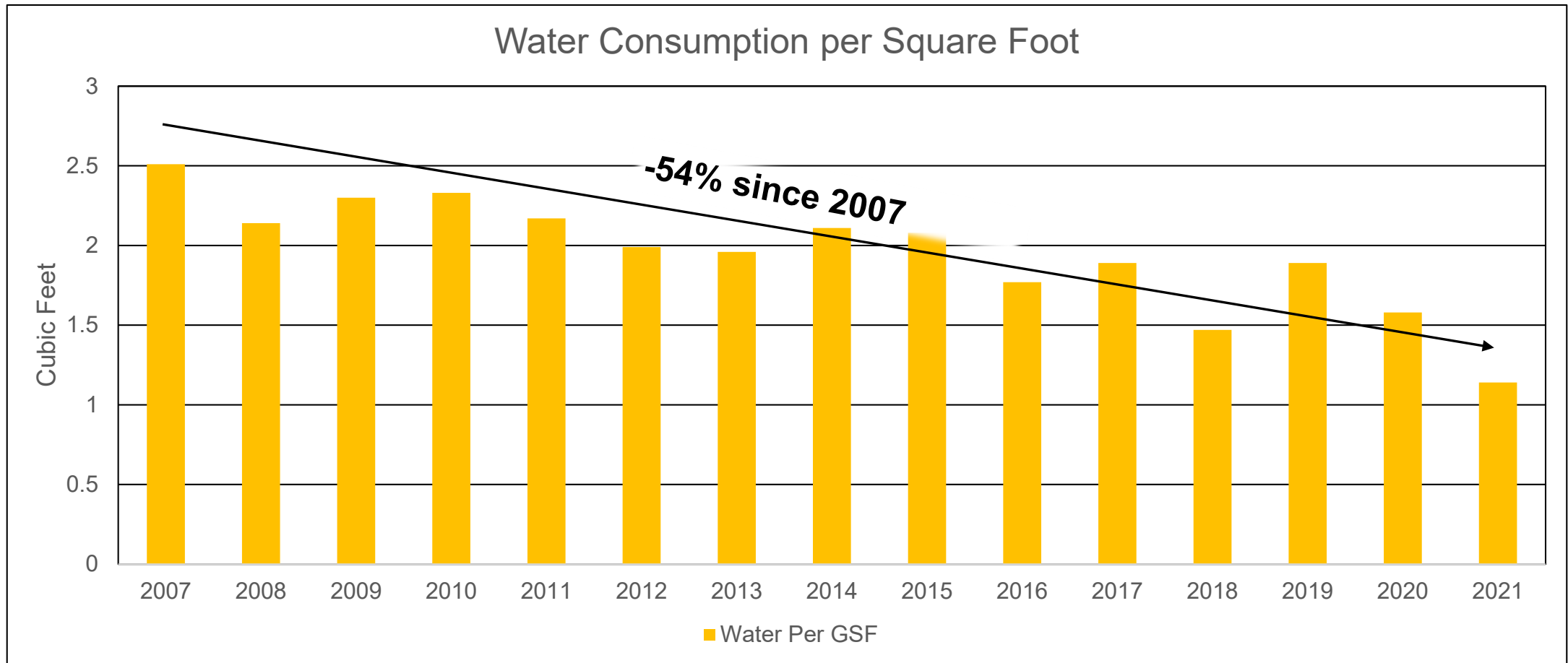
2021 Diversion Rate



Lower diversion rate and overall increase in waste in 2021, likely due to increased use of disposable items during the pandemic.

Scope 3: A closer look at Water

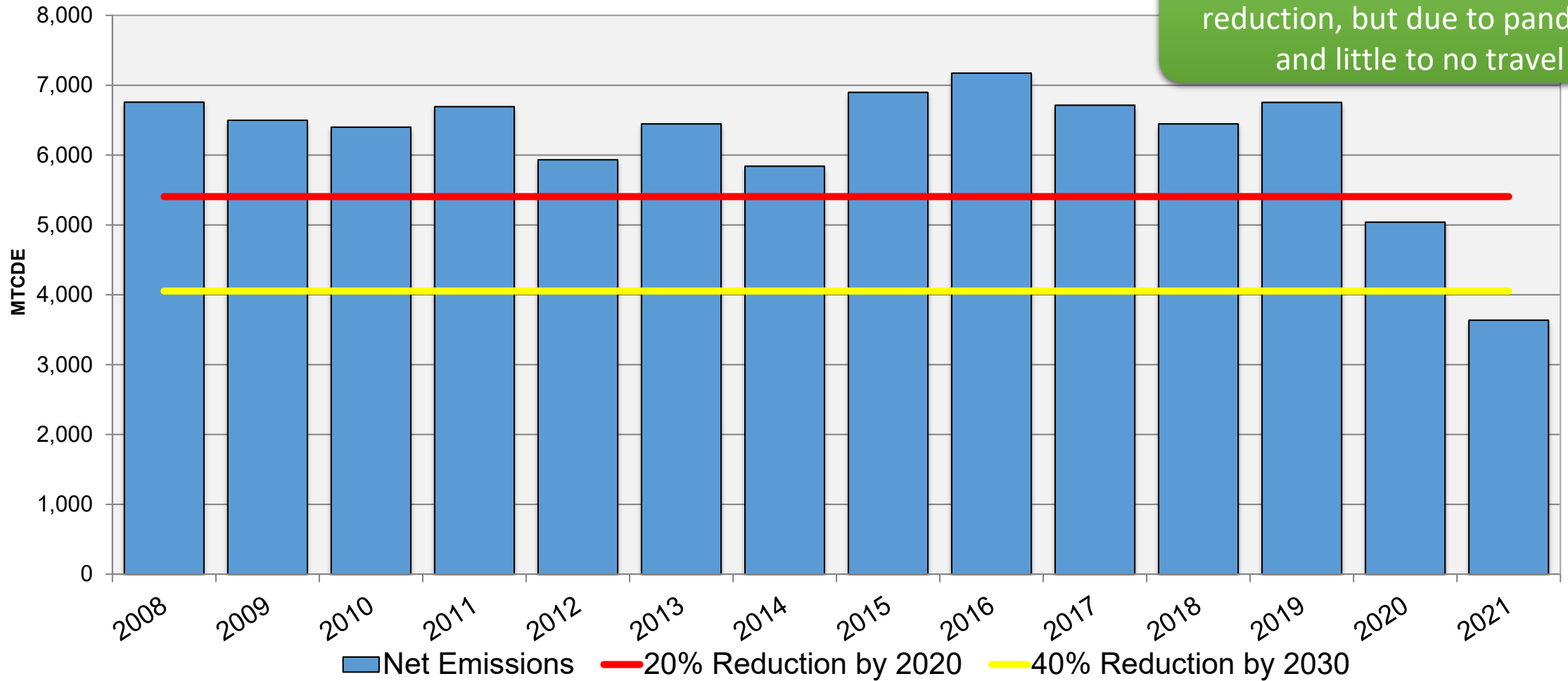
smaller emissions impacts, but impacts energy use and Lake Champlain



Water usage per GSF has decreased 54% since 2007

Net Emissions vs. Common Reduction Targets

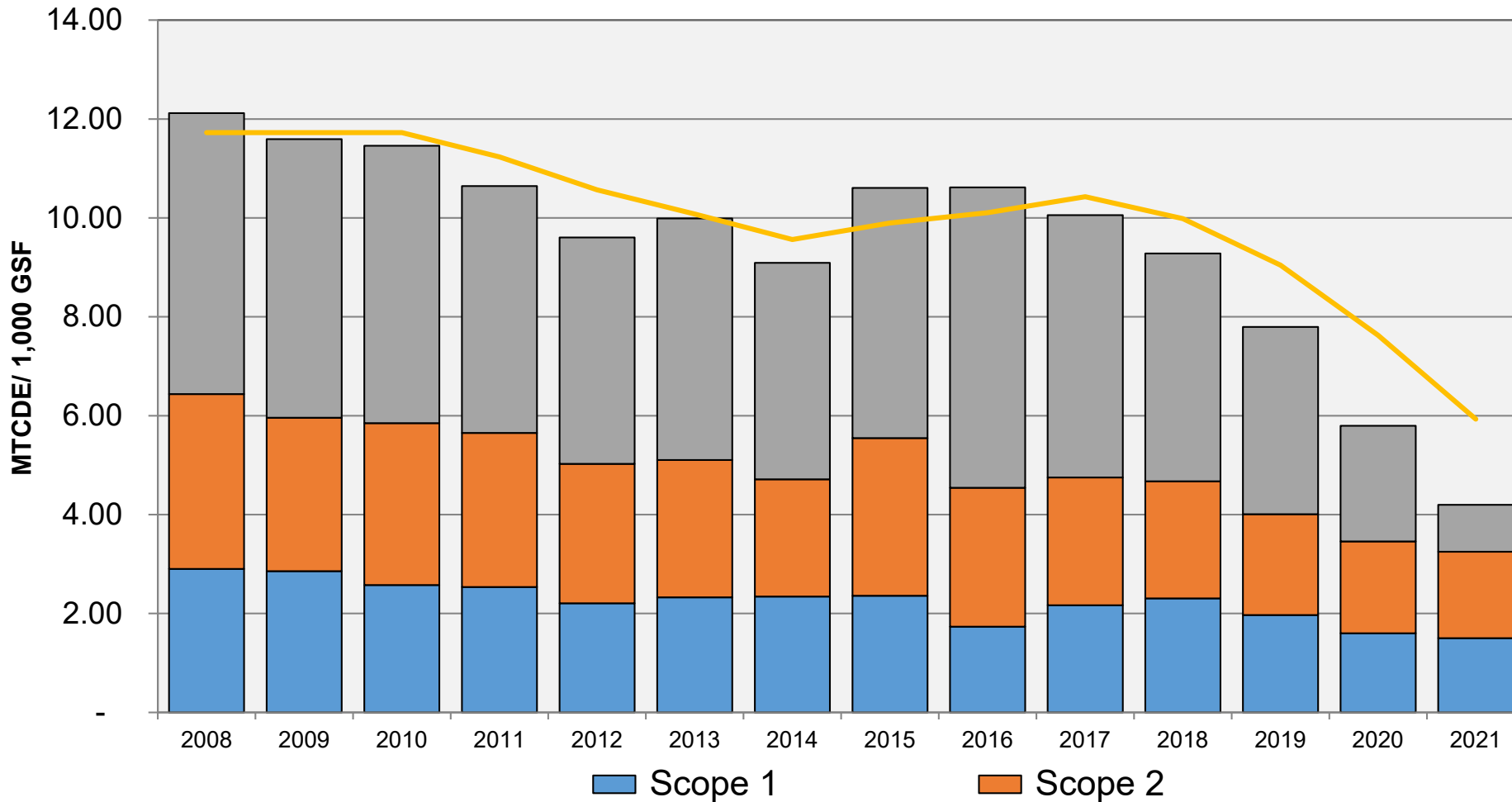
Historical Net Emissions



Achieved more than 40% reduction, but due to pandemic and little to no travel

Tracking Campus Emissions per Square Foot

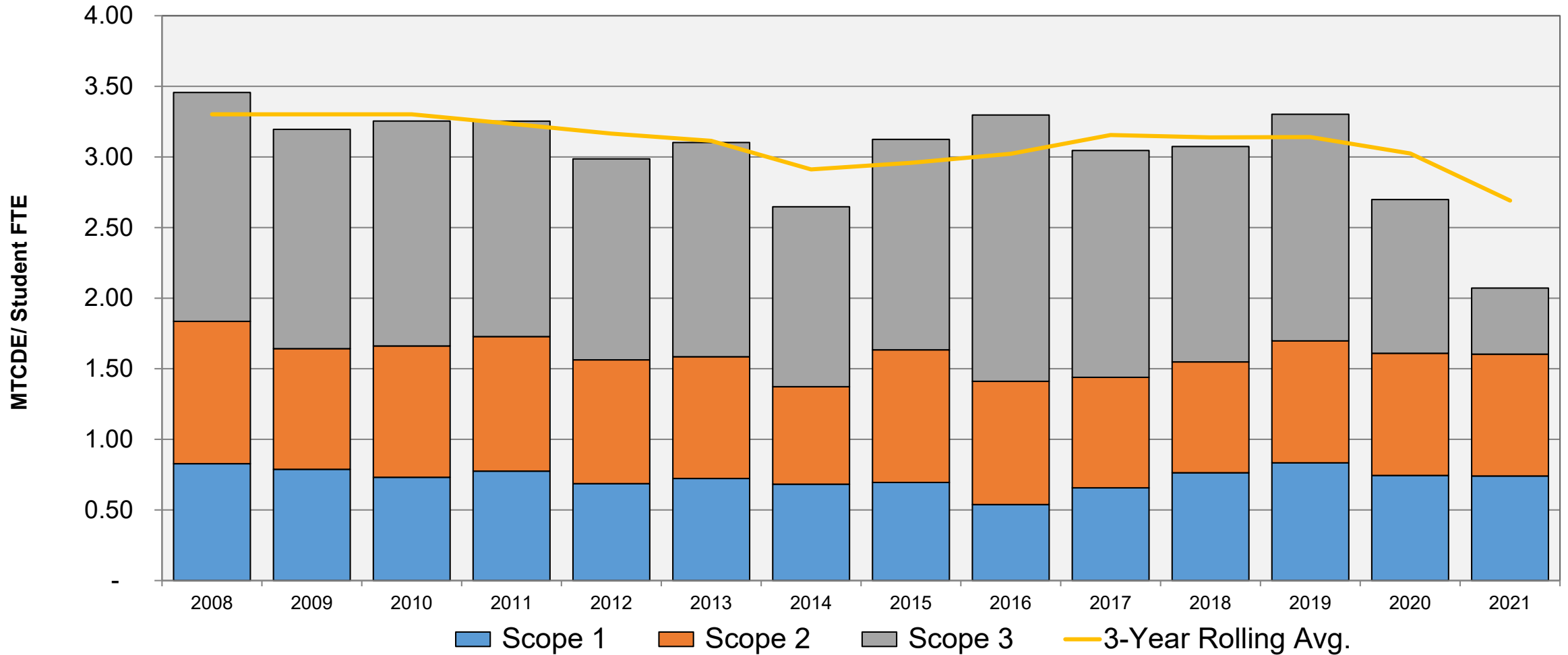
Gross Emissions per 1,000 GSF Year Over Year



Additional square footage of 194 St. Paul Street pulls down normalized emissions metric in FY19; pandemic results in more decreases in FY20 and FY21.

Tracking Campus Emissions per Student

Gross Emissions per Student Year Over Year



Strategic Plan Implications

CHAMPLAIN COLLEGE

R/Evolutionary Champlain College

2030 Strategic Plan (Internal)

11.30.21

*Goal 6.5: Champlain will model its commitment to sustainability through efficient facilities and operations management and will **make progress toward carbon neutrality.***

- *Maintain campus facilities in “as-new” condition using sustainable, proactive and cost-effective management of resources that meets the varied needs and interests of our students.*

What is next? Develop a Climate Action Plan for Champlain College that makes the [significant] progress toward carbon neutrality, as noted in Goal 6.5 of the Champlain College 2030 Strategic Plan and enacts the College’s mission and values.

Mission

Champlain College educates adaptable thinkers, daring change-makers, and inclusive innovators who shape professions and inspire communities.

Values

INNOVATION: We anticipate the future and thrive in dynamic conditions.

ENGAGED LEARNING: We commit to learning so everyone does meaningful work.

INCLUSIVITY: We practice inclusive teamwork and value diverse individual strengths.

PRACTICALITY: We provide experiential professional education.

INTERCONNECTEDNESS: We connect with people and places, from the local to the global.

WHAT IS CLIMATE NEUTRALITY?



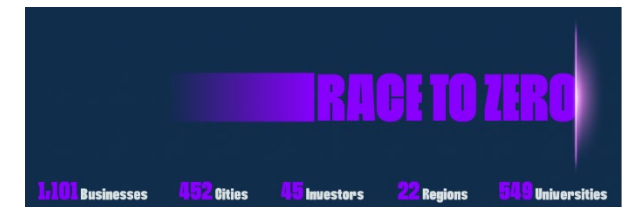
Second Nature defines climate neutrality as having no net carbon (greenhouse gas) emissions.

This is to be achieved by "minimizing carbon emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining emissions."

Source: *Greener U's Navigating Steps to Carbon Neutrality*
Slide deck from April 14, 2021: navigating the steps to climate neutrality

Opportunities

- City of Burlington's [Net Zero Energy Goals](#) announced Fall 2019
- BED needs to expend more efficiency funds, and they are willing to do so with us, including more funding for geothermal
- More Renewable Natural Gas available from Vermont Gas Systems ([slight cost increase](#), but also emissions decreases)
- National recognition and resources by
 - [Improved STARS rating](#)
 - signing onto the [Presidents' Climate Leadership Commitments](#) - Carbon Commitment *or*
 - International recognition with [UN's Race to Zero](#)



Notes

- For FY20 and FY21, data input and analysis in [SIMAP](#) tool conducted by Christina Erickson – may have different calculations, formulas, etc. from prior consultant
- Used Location-Based Scope 2 Method in SIMAP (instead of Market-Based)